

## Plantae Chineses Forrestianae.

Plants discovered and collected by George Forrest during his first exploration of Yunnan and Eastern Tibet in the years 1904, 1905, and 1906.

### Description of New Species of *Geranium*.

BY

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***Geranium kariense*, R. Knuth. Sp. nov. in Geraniaceae in  
Engl. Pflanzenreich iv, 129 (1912), p. 577.**

Caulis 30–50 cm. altus, suberectus vel erectus, demum glaber vel superne pilis recurvatis sparsim obsitus, angulosus, supra basin pseudo-dichotome ramosus. Folia inferiora longe petiolata; petioli graciles, non raro tortuosi, 1–1½ mm. crassi, pilis retro-adpressis praecipue laminam versus densius obsiti; folia superiora brevissime petiolata, sed non sessilia; lamina supra sparsim adpresse pilosa, subtus ad venas tantum pilis setosiusculis adpressis obsita, usque 10 cm. lata et 6–7 cm. longa (a basi ad apicem), ambitu 5–angulata, usque ad  $\frac{7}{8}$  palmato–5-partita, lobis e basi integra cuneata elongato-rhomboideis, apice satis longe producto acutis vel acuminatis, marginibus anterioribus grosse dentato-incisis vel incisis, laciniis et acinulis oblongis acutis et minutissime mucronulatis. Stipulae membranaceae, fuscae, ± lanceolatae, ± acuminatae, acutae vel acutissimae, integrae, mediae usque 10 mm. longae et 4 mm. latae. Inflorescentia corymbosa; folia floralia saepe ad unum lobum grosse incisum reducta, brevissime petiolata. Pedunculi bini, 2-flori, quam folium 1½–3-plo longiores, usque 6 cm. longi, indumento satis brevi ± retro-adpresso eglanduloso obsiti. Bractae subulatae vel capillares, basi vix latiores, 5–6 mm. longae. Pedicelli demum divaricati vel recurvati, calyce 1½–2½-plo longiores, pilis albidis setosiusculis retro-adpressis eglandulosis dense obsiti, 1–2 cm. longi. Sepala glabra, ad nervos (3) sparsissime pilis sursum directis adpressis ornata, ovata vel lanceolato-ovata, margine anguste membranacea, demum apicem versus acuminata,

[Notes, R.B.G., Edin., No. XXXVI, March 1913.]

mucronata mucrone 1-2 mm. longo, cum mucrone 8-10 mm. longa. Petala fusco-purpurea, calycem superantia, sub anthesi perfecte recurvata,  $\pm$  late obovata, integra, basi longe patule albo-villosa; circ. 10 mm. longa. Filamenta glabra vel ad basin sparsim ciliata, calyce longiora; antherae oblongae, atro-purpureae. Pistillum glabrum vel sparsissime barbatum. Fructus immaturus 28 mm. longus; valvulae pubescentes; rostrum sparsim puberulum, supra medium filiforme.

"Flowers magenta. Moist pine woods, western slope of Kari pass, Mekong-Yangtze divide. Elevation 11,000-13,000 ft. Yunnan. September 1904." G. Forrest. No. 97.

**Geranium Forrestii**, R. Knuth. Sp. nov. in Geraniaceae in Engl. Pflanzenreich iv, 129 (1912), p. 578.

Rhizoma lignosum, perpendiculare, versus collum 8-10 mm. crassum. Caulis 20-45 cm. altus, suberectus vel erectus, demum glaberrimus vel superne sparsim pilosus, juvenilis non raro retro-setoso-pubescent, angulosus, superne (2-15 cm. supra basin) pseudo-dichotome ramosus, inferne simplex. Folia inferiora satis longe petiolata; petioli usque 10 cm. longi, satis graciles, vix 2 mm. crassi, pilis recurvatis vel retrorsis praecipue laminam versus puberuli; folia superiora brevissime petiolata, summa sessilia; lamina supra glabra vel sparsim hyaline pilosa, subtus praecipue ad nervos pilis setosis hirsuta, usque 7 cm. lata,  $4\frac{1}{2}$  cm. longa (a basi ad apicem), ambitu reniformi-rotundata, usque ad  $\frac{3}{4}$  palmato-5(-7)-partita, lobis e basi integra cuneata rhomboideis, apice producto acutis vel fere acuminatis, incisis, laciniis et lacinulis oblongis acutis. Stipulae firmae, fuscae, deltoideo-lanceolatae, acutae vel acutissimae, integrae, inferiores usque 2 cm. longae, basi 4-5 mm. latae. Inflorescentia racemoso-corymbosa; folia floralia lobis multo angustioribus dentatis instructa, sessilia. Pedunculi, saepe trini, 2-3-flori, folio 2-3-plo longiores, usque 6 cm. longi, indumento patulo albo eglanduloso  $\pm$  divaricatulato obsiti. Bractae subulatae vel capillares, basi vix latiores, 5-6 mm. longae. Pedicelli demum divaricati vel recurvati, calyce 1-2-plo longiores, indumento satis brevi patulo-retrorso setoso dense obtecti, 1-2 cm. longi. Sepala pilis sursum adpressis vix dense subsericea, ovato-lanceolata, trinervata, margine vix membranacea, apicem versus acuminata, mucronata mucrone  $1\frac{1}{2}$  mm. longo, cum mucrone 8-9 mm. longa. Petala atro-purpurea, calycem superantia, sub anthesi perfecte patula, obovata, integra, basi longe patule albo-villosa, circ. 9 mm. longa. Filamenta infra medium margine sparsim ciliata; antherae lineari-oblongae nigricantes. Pistillum sericeum. Fructus maturus (?) 3 cm. longus; valvulae pubescentes; rostrum puberulum, superne filiforme (per partem quartam superiorem).

" Plant of 1-2 ft. Flowers deep rose-purple. Shady openings in pine forests on the eastern flank of the Tali Range. Lat. 25° 40' N. Alt. 9000-10,000 ft. August 1906. W. Yunnan." G. Forrest. No. 4282.

*Nota.*—*G. Forrestii* et *G. kariense* a ceteris speciebus sectionis *Reflexa* earundem regionum, *G. Delavayi* et *G. platypetalo*, manifeste secedunt pedicellis eglandulosis. Inter se facile distinguuntur foliorum forma et inflorescentia.

**Geranium candicans**, R. Knuth. Sp. nov. in Geraniaceae in Engl. Pflanzenreich iv, 129 (1912), p. 580.

Rhizoma obliquum vel verticale, sublignosum, circ. 1 cm. crassum, apice non dilatatum, stipulis pallide fuscis vel lutescentibus foliorum basaliū vix dense ornatum, unicaule. Caulis erectus vel suberectus, 30-35 cm. altus, manifeste angulosus, pro maxima parte glaberrimus, superne pilis recurvatis vel retroadpressis vix dense obsitus, inferne (saltem 10 cm.) simplex, sursum pseudo-dichotome ramosus, ramis cauli subaequilongis. Folia basalia et caulina inferiora longe petiolata petiolis quam lamina  $2\frac{1}{2}$ -4-plo longioribus, angulosis, inferne glabris, versus laminam pilis retrorsis puberulis, 10-15 cm. longis; lamina reniformi-orbicularis, usque 8 cm. lata, a basi ad apicem usque  $4\frac{1}{2}$  cm. longa, supra glabra vel pilis raris obsita, infra ad nervos tantum setoso-pilosa, usque ad  $\frac{3}{4}$  vel rarius ultra palmato-5-partita, lobis ambitu cuneato-obovatis, marginibus anterioribus 3-5-lobulato-dentatis, lobulis lateralibus integris acutiusculis vel obtusiusculis, lobulo medio saepe maiore apice iterum tridentato; folia caulina superiora brevissime petiolata, sed non sessilia, a basalibus diversa lobis angustioribus, utroque margine 2-4-dentatis, acuminatis, acutis. Stipulae pallide vel rubro-fuscae,  $\pm$  lanceolatae,  $\pm$  abrupte angustatae, acutissimae vel obtusae, puberulae. Pedunculi biflori, sicut pedicelli pilis retrorsis dense obsiti, folio petiolato 1-2-plo longiores, 4-8 cm. longi. Stipulae lineari-lanceolatae vel lanceolatae, 8 mm. longae, mox rubrofuscae et glabrae, abrupte angustatae, acutae. Pedicelli 10-35 mm. longi, sub calyce dense retrorso-pilosi, fructiferi verisimiliter recurvati. Sepala 3-nervata, ovato-oblonga, mucronata mucrone 1-1 $\frac{1}{2}$  mm. longo, cum mucrone demum 10 mm. longa, late membranaceo-marginata. Petala calyce mucronato 1 $\frac{1}{2}$ -1 $\frac{3}{4}$ -plo longiora, 17 mm. longa et 12 mm. lata, late obovata, integra vel vix perspicue undulata, intense alba, nervis vix perspicuis. Stamina calyce paullo breviora; filamenta sicut petalorum basis pilis longis albis patulis inferne dense hispida; antherae lineari-oblongae, atro-purpureae. Pistillum albo-lanuginoso-villosum. Fructus. . . .

"Plant of 9-14 inches. Flowers pure white, anthers dark crimson. Open, grassy situations in pine forests on the eastern flank of the Tali Range. Lat. 25° 40' N. Alt. 10,000-11,000 ft. June 1906. W. Yunnan." G. Forrest. No. 1879.

*Nota.*—Species affinis est *G. Wlassowiano*, a quo distinguitur primo aspectu floribus magnis, 4 cm. diam., intense albis.

**Geranium strictipes**, R. Knuth. Sp. nov. in Geraniaceae in Engl. Pflanzenreich iv, 129 (1912), p. 580.

Rhizoma lignosum, perpendiculare, infra collum 8-10 mm. crassum, ad collum saepe valde incrassatum, usque 3 cm. crassum, 1-4-caule. Caulis 20-50 cm. altus, suberectus vel erectus, inferne sparsissime, superne dense indumento simplici patulo manifeste inaequilongo hyalino subhirsutus, praecipue inferne angulosus, 2-10 cm. supra basin regulariter pseudo-dichotome ramosus, inferne simplex. Folia basalia et caulina inferiora vix longe petiolata; petioli usque 10 cm. longi, graciles, 1-1½ mm. crassi, pilis longis setosiusculis tenuibus in petiolis superioribus tantum dense obtecti; folia superiora gradatim brevius petiolata, summa autem non sessilia; lamina supra et subtus ad venas setis hyalinis ± dense obsita, usque 4-5 cm. lata, 2½ cm. longa (a basi ad apicem), ambitu rotundato-vel saepius reniformi-5-angulata, usque ad ⅔ palmato-5-partita, lobis e basi angustata flabellatis; lobi vix usque ad medium trilobulati, lobulis oblongis vel cuneatis vel fere rectangulis, apice 2-3-dentatis, dentibus acutiusculis. Stipulae lineares, tenues, circ. 1-2 mm. latae, sicut caulis saepe mox rubellae, acutae vel acutissimae; stipulae basales mox deciduae. Pedunculi quam folium 1-3-plo longiores, usque 10 cm. longi, plerumque autem breviores, graciles, vix 1 mm. crassi, sicut pedicelli indumento simplici patulo manifeste inaequilongo hyalino hirsutiusculi. Bractae subulatae, 6-10 mm. longae, hirsutae. Pedicelli pedunculis non tenuiores, calyce 1½-2-plo longiores, 1-2 cm. longi, fructiferi stricte erecti. Sepala pilis setosis hyalinis subhirsuta, ovata vel ovato-lanceolata, 3-nervata, margine vix membranacea, apicem versus vix acuminata, mucronata mucrone demum saepe purpurascente 2-2½ mm. longo, cum mucrone 10 mm. longa, 3 mm. lata. Flos 22 mm. diam.; petala roseo-purpurea, calycem mucronatum 1½-1¾-plo superantia, late cuneata, apice retuso leviter emarginata vel integra, margine inferne longe ciliata, circ. 12 cm. longa, 7 mm. lata. Filamenta et pistillum quam calyx (sine mucrone) breviora; filamenta lineari-subulata. Pistillum niveo-sericeum. Fructus rostratus 30 mm. longus; valvulae sparsim puberulae; rostrum indumento brevi setosiusculo satis dense obtectum.

"Plant of 1-2 ft. Flowers rose-pink. Dry, stony situations amongst scrub and in thickets on the eastern flank of the Lichiang Range. Lat.  $27^{\circ} 20'$  N. Alt. 10,000-11,000 ft. June 1906. N.W. Yunnan." G. Forrest. No. 2369.

*Nota.*—Species certe ad formas *G. strigosi*, Franch., pertinet. Fortasse est synonymum var. *gracilis*. Mea sententia autem varietates melius pro speciebus habendae sunt.

## Enumeration and Description of Species of *Pedicularis*.

### GUSTAVE BONATI.

Paris.

#### SECT. I. SIPHOPANTHA.

##### 1. *P. alphonantha*, Bon.

"Plant of 8-10 inches. Flowers bright rose. Shady situations in forest on the eastern flank of the Lichiang Range. Lat.  $27^{\circ} 20'$  N. Alt. 10,000 ft. August 1906. G. Forrest. No. 2369.

"Plant of 2-4 inches. Flowers bright rose. In damp forest on the eastern flank of Lichiang Range. Lat.  $27^{\circ} 20'$  N. Alt. 10,000 ft. August 1906. G. Forrest. No. 2369.

"Plant of 2-3 inches. Flowers deep rose. Shady slopes in forest on the eastern flank of the Lichiang Range. Lat.  $27^{\circ} 20'$  N. Alt. 10,000-11,000 ft. August 1906. G. Forrest. No. 2369.

##### 2. *Pedicularis Delavayi*, Franch.

"Plant of 2-3 inches. Flowers bright rose. Open sunny pasture on the eastern flank of the Lichiang Range. Lat.  $27^{\circ} 20'$  N. Alt. 10,000-11,000 ft. June 1906. G. Forrest. No. 2369.

"Plant of 2-3 inches. Flowers bright rose. Shady sunny slopes in forest on the eastern flank of the Lichiang Range. Lat.  $27^{\circ} 20'$  N. Alt. 10,000-11,000 ft. September 1906. G. Forrest. No. 2369.

##### 3. *Pedicularis signoides*, Franch.

No. 2022. Without locality.

##### 4. *Pedicularis Elvandi*, Hook. f.

"Plant of 8-10 inches. Flowers bright rose. Shady sunny pasture on the eastern flank of the Lichiang Range. Lat.  $27^{\circ} 20'$  N. Alt. 10,000-11,000 ft. August 1906. G. Forrest. No. 2369.